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Reply to the Editor:

Several clinical studies are underway to test the efficacy of ventricular resection surgery as a therapy for patients with dilated cardiomyopathy. While the community awaits the results of these clinical studies, several investigators have applied mathematical modeling to more rigorously test the theoretical basis for this procedure. However, the results from a given model may be influenced not only by the fundamental assumptions of the model but also by the particular set of parameters chosen for the model. Conflicting results and complexities of the models lead to confusion among clinicians as to the value of modeling.

The role of ventricular resection for the treatment of dilated cardiomyopathy cannot be determined by theoretical analyses, no matter how sophisticated or apparently realistic the model. The efficacy of this procedure will only be determined through intelligent clinical study design and proper interpretation of the resultant clinical data. It should be recognized that the utility of modeling is to expose physiologic principles that are otherwise masked by the complexities of cardiovascular interactions. Models are particularly useful when there is a lack of available techniques to make the necessary measurements in patients. These principles aid in interpreting clinical data and sometimes in helping optimize certain aspects of the therapy.

The fundamental principles revealed by our model[1] are as follows: Ventricular resection results in increased end-systolic elastance (apparent increase in chamber contractility), but also in increased diastolic stiffness. These offsetting effects on systolic and diastolic properties result in little change (we actually predict a slight decrease) in stroke volume at a given filling pressure (i.e., the Starling relationship is slightly depressed). Ejection fraction is increased primarily because of the decrease in end-diastolic volume, not because of an increase in stroke volume; therefore, this increase in ejection fraction should not be interpreted as an increase in chamber contractility. Wall stress is decreased at a given peak ventricular pressure, but the significance of this is uncertain. Accordingly, the success of the procedure (based on hemodynamic criteria) should not be judged by indirect measures of chamber contractility (such as ejection fraction); functional measures such as the Starling relationship or maximum oxygen consumption are more appropriate.

The limited available data are already confirming these principles. Early clinical studies revealed little change in stroke volume as a result of the operation.[2] More recently, Kawaguchi and associates[3] measured pressure-volume relations in patients before and after reduction surgery and confirmed our predictions, including a postoperative reduction in stroke volume despite an increase in end-systolic elastance and ejection fraction. Finally, in a study of four patients, Gorcsan and colleagues[4] found a marked increase in diastolic stiffness as measured by end-diastolic pressure-area relations.

It is basically irrelevant whether or not the predictions of our model agree with those of another model. What is relevant is whether validity of the fundamental principles deduced from the model is confirmed by results of clinical studies. In this regard, available data support our predictions.

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Pleural tenting for upper lobectomy

To the Editor:

Robinson and Preksto[1] showed that obliterating the apical space with a pleural tent shortened the duration of air leaks after upper lobectomies. This in turn resulted in reduced chest tube time and length of hospital stay. I have not noticed a significant difference in air leaks when comparing upper lobectomies with lower lobectomies in my patient population. To establish whether any additional maneuver, such as pleural tenting, would be beneficial to my patients, I examined data from the last 20 consecutive patients in whom I performed upper lobe resections. These patients are part of an ongoing clinical pathway study group. For age and gender distribution, type of operation, chest tube time, and length of hospital stay, see Table I. No mortality and no significant morbidity were recorded, the mean length of hospital stay was 1.5 days, and only one of these patients had to be readmitted—a patient with severe emphysema who had a sudden episode of shortness of breath 1 week after the chest tube had been removed. A small anterior chest tube was inserted for a pneumothorax, and the patient was discharged the day after the readmission and had no further complications. Another patient had temporary vocal cord dysfunction resulting from manipulation of the left recur-